Prov_st_cra	MN_cra name
56.1	**Red River Valley** This area formed in silty and clayey lacustrine sediments from the former Glacial Lake Agassiz. The major soils are poorly drained. Saline soils exist in places. A system of shallow surface ditches, judicial ditches and road ditches removes surface water in spring and during high rainfall events. The native vegetation was tall grass prairie, with water tolerant species in the low areas. The primary land use is cropland. The major crops are small grain, sugar beets, and soybeans. Primary resource concerns are soil erosion and deposition by wind and surface and ground water quality.
56.2	**Glacial Lake Agassiz Basin** This area formed in a complex pattern of sandy beach material, stratified interbeach material, lacustrine silts and lake washed glacial till. The soils vary from excessively drained on ridges to very poorly drained organic basins. Surface ditches serve to drain some of the area, although much of the area lacks adequate drainage for maximum crop production. Calcareous fens and saline seeps can occur at the base of beach ridges and result in rare plant communities. Native vegetation was mixed tall and short grass prairie with scattered woodland and brush. The main land use is cropland. The major crops are small grain, soybeans and hay. Primary resource concerns are wind erosion on beach ridge areas, droughty conditions on sandy soils and excessive wetness in low lying and seepy areas.
57.1	**Northern MN Till Moraine** Rolling glacial moraine and associated outwash with short, choppy and complex slopes. Soils are generally loamy with some clayey and sandy soils included. Organic soils occur in depressions. Native vegetation was dominantly forest vegetation. The primary land uses are cropland, pasture, timber and recreation. Main crops are small grain, soybeans and forage crops. Numerous lakes occur in this region. Resource concerns include poor drainage for crop production, poor grazing management of forest and grassland, water and wind erosion and water quality.
88.1	**Northern MN Glacial Lake Basins** Nearly level to gently sloping areas formed in lake washed till, lacustrine and organic soil material. Generally the soils are silty, clayey and loamy with small amounts of sandy and gravelly soils on beach ridges. Native vegetation was conifer and hardwood forests, with conifer swamps and bogs. Timber land is the main use. Scattered cropland and grazing land for beef and dairy are present. Cropland is used mostly for small grain, silage and hay. Resource concerns include adverse climate and poorly drained high water table soils, improperly managed grazing, and water quality.

90A.1 **Loamy Till Ground Moraines and Drumlins**

Nearly level to moderately steep, loamy, sandy and organic soils. Native vegetation was mixed forests, aspen-oak and oak savanna. Mixed deciduous and coniferous forest is the primary land use with some glacial lakes and wetlands. Scattered cropland and grazing land are present. Cropland is used mostly for corn, soybeans, small grains and hay. Cropland productivity is limited by the short length of the growing season. Primary resource concerns are timber management, wildlife habitat, recreation and agricultural forage production. Surface water quality is a localize concern.

90B.1 **Dense Till Ground Moraine**

Nearly level and gently sloping moderately well drained and somewhat poorly drained loamy soils underlain by loamy glacial residuum and bedrock. Mostly cropland and grazing land, with areas of mixed deciduous and coniferous forest, wetlands, and a few lakes. Agricultural field activities are strongly influenced by the poor internal drainage of the dense till soils. Dairy and beef production with some cash grain are the primary agricultural enterprises. Primary resource concerns include nutrient management, cropland soil erosion, grazing land productivity, surface water management on cropland, and urban development. Forestland productivity, erosion during timber harvest, and upland wildlife habitat management are also important planning considerations.

91A1 **Central Minnesota Outwash**

These soils are excessively to well drained sands and sandy loam soils on outwash plains and include some portions of end moraines. There are also numerous poorly and very poorly drained landscape components. Native vegetation was hardwood and coniferous forest. Forest land, irrigated cropland and dairy farming are the major land uses. Corn, soybeans, edible beans and potatoes are the primary irrigated crops. Forage crops are also extensively grown. Resource concerns include water quality, nutrient management, improperly managed grazing and wind erosion.

91B.1 **Anoka Sand Plain and Northwest Wisconsin Outwash**

Gently sloping to moderately steep outwash plains and moraines. Soils are predominantly well to excessively drained sands with loamy and organic soils interspersed. Native vegetation was oak barrens and openings with bogs, wet prairies and swamp forest in depressions in the sand plain. Most of the area has been converted to irrigated and dryland cropland. Potatoes, corn, sweet corn, dry edible beans and small grain are the major crops. The primary resource concerns are cropland erosion, surface and ground water quality. Demand for recreational property in the area is a growing influence.

92.1 **Lake Superior Clay Plain**

Gently sloping, clayey and loamy lakebed deposits with deep v-shaped ravines. Well drained to somewhat poorly drained clayey soils predominate, with interspersed organic soils. Boreal forest and mixed deciduous and coniferous forest

predominate with significant areas of forage based cropland and grazing land. Lake Superior shoreline, Apostle Islands, and Kakagon/Bad River Sloughs are unique ecological and recreational resources within the CRA. Primary resource concerns are forestland, cropland productivity, wetland habitat restoration, erosion control on deeply incised streams, and development around Ashland and Superior. Resource planning in the area is heavily influenced by Native American culture.

93A.1 **Superior Upland Bedrock and Till Complex**

Gently sloping to very steep soils that generally formed in loamy, dense glacial till. Bedrock control is common and outcrops in many places, especially in the Boundary Water area. Bogs are common, both dysic and euic in reaction. Deciduous and coniferous forestland is the main land use. Small areas of cropland, pasture and hayland occur. Recreation demands are increasing, especially along the many lake shores. Resource concerns are timber harvest management, wildlife habitat management, forage production, and riparian management.

102A.1 **Rolling Till Prairie**

Gently sloping to steep, loamy glacial till soils with scattered sandy outwash soils and silty alluvial flood plains soils. This area is part of the Prairie Pothole region of the upper Midwest. Native vegetation was mesic and wet tall grass prairie. The pothole sections have been extensively drained. Predominantly cropped to corn and soybeans with increasing hayland and pasture and small grains in the western part. Resource concerns are water and wind erosion, nutrient management and water quality.

102C.1 **Loess Uplands**

Gently undulating to steep soils with long smooth slopes and well defined drainage ways formed in loess mantled uplands. There are some exposures of bedrock. Soils are commonly well drained with some poorly drained upland waterways. Native vegetation was mixed tall and short grass prairie. The primary land use is cropland. Corn, soybeans, grain sorghum, alfalfa and oats are the major crops. Resource concerns are water and wind erosion, nutrient management and water quality.

103.1 **Iowa and Minnesota Till Prairies**

Primarily loamy glacial till soils with scattered lacustrine areas, potholes, outwash and alluvial flood plains. Nearly level to gently undulating with relatively short slopes. Steeper areas typically occur along stream valley walls. Most of the wet soils have been artificially drained to maximize crop production. Native vegetation was tall grass prairie on the uplands and wet prairie on hydric low areas. Primary land use is cropland. Corn, soybeans, sugar beets, peas and sweet corn are the major crops. Hog operations are also prominent. Resource concerns are water and wind erosion, nutrient management and water quality.

103.2 **Iowa and Minnesota Rolling Prairie/Forest Moraines**

Primarily loamy glacial till soils with some potholes, outwash and alluvial flood plains. Gently undulating to rolling with relatively short, complex slopes. Steeper areas typically occur along stream valley walls. Organic soils occur in the larger basins. Primary land use is cropland. Corn, soybeans and hay are the major crops. Native vegetation was dominantly mixed tall grass prairie and deciduous trees. Resource concerns are water and wind erosion, nutrient management, water quality and wildlife habitat management.

104.1 Silty and Loamy Mantled Firm Till Plain

Gently sloping to very steep dissected till plain including the Mississippi and Chippewa River valleys. Soils are predominantly well drained and are formed in thin silty material over loamy till, underlain by sedimentary bedrock. Native vegetation was hardwood forest and oak savanna. The primary land use is cropland and grazing land on ridge tops and valley bottoms with a mix of dairy, beef and cash grain agricultural enterprises, and deciduous forest on side slopes. Primary resource concerns are cropland erosion, surface water quality, grazing land and woodland productivity, and soil erosion during timber harvest.

105.1 **Driftless Loess Hills and Bedrock**

Highly dissected hills and valleys including the Mississippi, Chippewa, and Wisconsin River valleys and the western Baraboo Hills. Well drained and moderately well drained silty soils over bedrock residuum. Predominantly cropland and grazing land on ridge tops and valley bottoms with a mix of dairy, beef and cash grain agricultural enterprises. Deciduous forest on steep side slopes. Eau Claire, LaCrosse and Dubuque urban areas, and increasing demand for recreational land are influencing land use in the area. Primary resource concerns are cropland soil erosion, surface water quality, grazing land and forestland productivity, streambank erosion, and erosion during timber harvest.

107A.1 Loess mantled Rolling Prairie Till Plain

Gently undulating to steep soils with long smooth slopes and well defined drainage ways formed in loess mantled uplands. Soils are commonly well drained with some poorly drained upland waterways. Native vegetation was tall and short grass prairie. The primary land use is cropland. Corn and soybeans are the major crops. Resource concerns are water erosion, nutrient management and water quality.